**Making Science Labs Accessible to Students with Disabilities**

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**T.E.P. 547**

Barriers to access may prevent students with disabilities the same learning opportunities that mainstream student do. Such barriers may prevent disabled students from gaining and demonstrating knowledge, and participating in lab activities. There are two approaches commonly used to make the disabled included in the classroom which are accommodations and universal design.

A **Universal Design** Lab is one that is fully adjustable. For instance making a workbench that adjusts for the height of a wheelchair. The idea behind this type of design is to eliminate a constant need to try to make accommodations that may or may not be feasible. Universal design is the design of products and environments to be usable by all people, to the greatest extent possible, without further need for adaptation or specialized design. Other examples of universal design are as follows:

* Provide both written and verbal instructions.
* Give verbal and visual descriptions of demonstrations and visual aids.
* Use plastic instead of glass.
* Allow extra time for set up and completion of lab work.

**Accommodations** are what most teachers still practice, making adjustments to help make an exclusive classroom inclusive. The following are examples of accommodations that might benefit a student with a disability:

* Use wheelchair-accessible labs and field sites.
* Talk to a student about special learning needs and accommodation alternatives.
* Provide a lab partner.
* Use plastic instead of glass.

Typical science lab accommodations for students with specific disabilities include those in the following lists:

**Blindness**

* Verbal descriptions of demonstrations and visual aids
* Braille text and raised line images
* Braille or tactile ruler, compass, angles, protractor
* Braille equipment labels, notches, staples, fabric paint, and Braille at regular increments on tactile ruler, glassware, syringe, beam balance, stove, other science equipment different textures (e.g., sand paper) to label areas on items.

**Low Vision**

* verbal descriptions of demonstrations and visual aids
* preferential seating to assure visual access to demonstrations
* large-print, high-contrast instructions and illustrations
* raised line drawings or tactile models for illustrations

**Mobility Impairments**

* wheelchair-accessible field site
* uncluttered lab; clear, wide aisles
* preferential seating to avoid physical barriers and assure visual access to demonstrations
* mirrors above the instructor giving a demonstration

**Deaf and Hard of Hearing**

* preferential seating to view demos and watch instructor captioning for video presentations
* written instructions prior to lab
* visual lab warning signals

**Learning and Attention Disabilities**

* combination of written, verbal, and pictorial instructions with scaffolding
* repeated demonstration of procedure and support practice
* frequent brief breaks
* preferential seating to avoid distractions and minimize extraneous stimuli

**Health Impairments**

* avoid chemical materials to which student is allergic or provide alternate assignment
* flexible schedule and time allocation

This article was very clear and concise. I believe that I gained some very useful knowledge about how a science lab can be designed and the accommodations that can be made for disabled students. Many of these concepts are extremely useful for the general classroom as well! There is also a great section on how to communicate with students with disabilities!

Source

Burgstahler, S. (2009). Making science labs accessible to students with disabilities. University of Washington.

Link to article

http://www.washington.edu/doit/Brochures/PDF/science\_lab.pdf